

IN THE DRAWINGS:

Please amend the drawings in accordance with the Letter to the Examiner Requesting Approval of Changes to the Drawings filed concurrently herewith.

REMARKS

In the Office Action mailed March 8, 1999, the drawings were objected to, the title was objected to, the abstract was objected to, the disclosure was objected to for informalities, claims 1, 3, and 7 were objected to for informalities, claims 1-12 were rejected under 35 U.S.C. §112(2) as being indefinite, and claims 1-12 were rejected under 35 U.S.C. §102(e) as being anticipated by Kakuta, U.S. Patent No. 5,636,356.

Claims 2 and 8 are cancelled.

The foregoing objections, and the rejections of remaining claims 1, 3-7, and 9-12, are traversed.

The title, specification, abstract, drawings, and claims 1, 3, 5, 6, 7, and 9-12 are amended. New claim 9 is added. Support for new claim 9 is found in the specification, and page 15 at lines 4-14 thereof in particular.

Care has been exercised to avoid the introduction of new matter.

Figure 6 is amended, taking the Examiner's comments into consideration, in the Letter to the Examiner Requesting Approval of Changes to the Drawings filed concurrently herewith. Withdrawal of the objections to Figure 6 is respectfully requested. Further, the objections to Figure 4 are traversed. The specification, page 10, at line 21, is amended for clarification.

Support for the foregoing amendments to the specification is found in Figure 4, and in the specification, page 10, at lines 21-25. Withdrawal of the objections to Figure 4 is respectfully requested.

Withdrawal of the Examiner's objections to the drawings is respectfully requested.

Upon receipt of a Notice of Allowance in the subject application, formal drawings overcoming the objections to the drawings asserted by the Draftsperson on Form PTO-948 which accompanied the March 8 Action will be filed.

The title, specification, and abstract are amended, taking the Examiner's comments into consideration. Withdrawal of the objections to same is respectfully requested.

Claims 1, 3, and 7 are amended to overcome the objections to same asserted in the Action. Claims 5, 6, 10, and 12 are amended for clarification. Withdrawal of the objections to claims 1, 3, and 7 is respectfully requested.

Claims 1 and 7 are amended, taking the Examiner's comments into consideration. Claims 3, 4, 5, and 6 depend from claim 1, and claims 9-12 depend from claim 7. Withdrawal of the rejections of claims 1-12 under 35 U.S.C. §112(2) is respectfully requested.

Kakuta discloses a RAID apparatus having a plurality of disk unit and a disk controller accessing the disk unit. In Kakuta, when read request are concentrated to the particular drive, duplex data is read. To detect the concentration to the particular drive, the read requests issued to the drive at a predetermined interval are stored, and when the count exceeds a preset count, duplex data are read (as disclosed in Kakuta column 14, lines 35-49). Accordingly, the read requests are counted, and when the counted value exceed a predetermined value, then another

drive having the same logical volume is selected. In the Kakuta apparatus, since the another drive having the same logical volume is not selected until the count value exceeds a predetermined value, balancing between drives is not performed until the count value exceeds the predetermined value. Additionally, in the Kakuta apparatus, selection of another drive is not performed when the count values of all drives having the same logical volume exceed the predetermined value, as would occur in the case of large request to access the drives.

The Examiner's assertions in item 17, on page 6 of the Action, are traversed. Kakuta discloses that one count value is compared to a threshold to determine which drive to access, but does not disclose or suggest comparing count values to each other to determine which drive to access, as in the present invention.

In contrast to the Kakuta apparatus, the present invention counts the number of request made for each drive, compares the count value of the number of requests made for each drive having the same logical volume, and selects the drive having a minimum count value.

More particularly, independent claims 1, 7, and 13 recite (using the recitation of claim 1 as an example) "compares numbers of operations corresponding to a plurality of physical disk units which store said designated logical volumes with each other, and selects the physical disk unit which has a minimum number of operations".

The benefit of the foregoing features of the present invention is that the drive having a minimum count value is always selected. Therefore, balancing of the requests is always performed. Accordingly, high speed access of the disk units can be performed.

Further, in the present invention, although there are a large number of requests made to a particular logical volume, a drive storing the logical volume is selected, preventing the situation in which the request cannot be accepted.

Dependent claims 3-6 and 9-12 recite patentably distinguishing features of their own. For example, claim 3 recites "a resource manager circuit determining one of the plurality of physical disk units to be accessed in accordance with said number of operations in said memory in response to a transfer request from said channel adapter circuit, and requesting said device adapter circuit to perform an operation accessing said determined physical disk unit".

The benefit of the features recited in claim 3 is that the disk unit to be accessed is determined by the resource manager included in the "control means".

Withdrawal of the rejections of remaining, pending claims 1, 3-7, and 9-12 under 35 U.S.C. §102(e) as being anticipated by Kakuta is respectfully requested.

The Examiner is respectfully requested to acknowledge, sign, and return to the undersigned a copy of the Form PTO-1449 which accompanied the Information Disclosure Statement filed May 21, 1999.

In view of the above, it is respectfully submitted that the above-referenced application is in condition for allowance, which action is earnestly solicited.

Serial No. 932,427

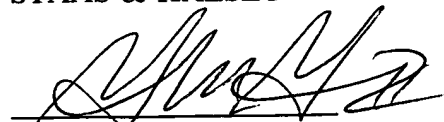
Docket No. 1081.1055\GMG

If any further fees are required in connection with the filing of this Amendment, please charge same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY

By:


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Date: July 8, 1999

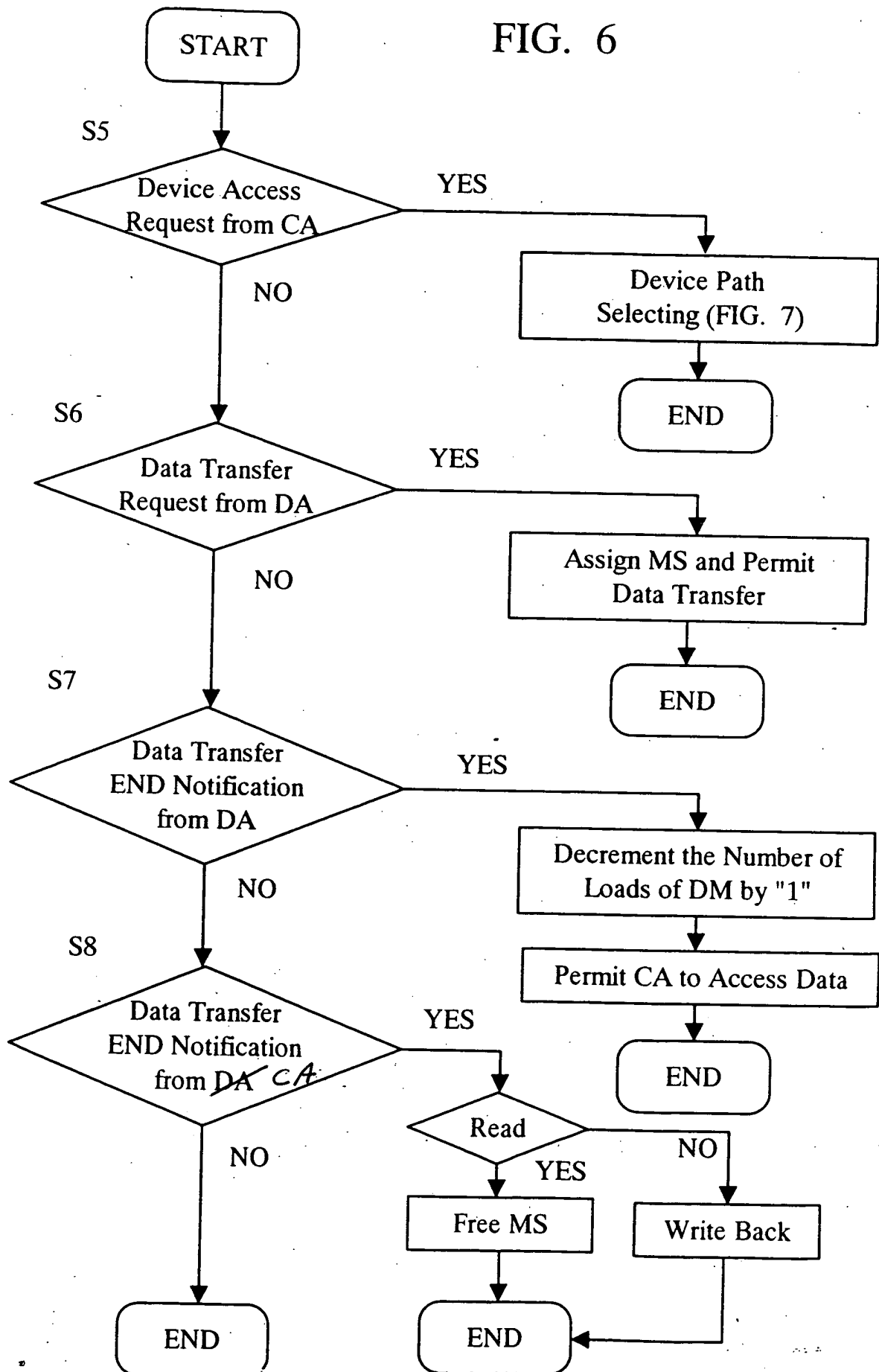
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CERTIFICATE UNDER 37 CFR 1.8(c)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231

on July 8, 1999
STAAS & HALSEY
By: Gene M. Garner II
Date: July 8, 1999

FIG. 6



OK
GJP
9/13/99